Participatory Research in the HIA process; Understanding Environmental Health Impacts of Urban Agriculture

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Background
Participatory action research is an approach that involves the most marginalized in problem solving. It’s use of traditional quantitative and qualitative as well as non-traditional techniques such as mapping, scenario drawings, photos provide rich meaningful data to understand the real health impacts of policies, programmes and projects. This poster describes the potential application of a PAR methodology for Health Impact Assessment by examining impacts of urban agriculture in a peri-urban zone of Dakar, Senegal with poor farmers.

Objectives
• scope the extent of interventions,
• identify the key environment and health issues related to urban agriculture (UA),
• determine the significance of the health impacts
• identify mitigation and follow-up.

A) Scoping Interventions
PAR facilitates an iterative process using triggers to stimulate listening, dialogue and action through question posing.

B) Identifying Key Environment and Health Risks in UA
Land speculation and insecure land tenure, lack of access to credit, inappropriate equipment, drought, poor soil fertility, salination of soil and water, low productivity cause

Pest invasions leading to use of unauthorised toxic pesticides with no protective equipment

Dimethoate, Dicofol, Lannate, Maneb, Metaphos WHO Classification – extremely, highly and moderately hazardous

Untreated Wastewater to increase soil fertility and provide water
- No protective Equipment - Contact dermatitis, Protozoans, Helminths- Ascaris, Urinary parasites -

Examples of Triggers for Dialogue and Analysis

i) Question Posing – What are the Health Risks linked to UA?

<table>
<thead>
<tr>
<th>Health Risks</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fatigue</td>
<td>12.9%</td>
</tr>
<tr>
<td>Headache</td>
<td>16.9%</td>
</tr>
<tr>
<td>Asthma</td>
<td>27.9%</td>
</tr>
</tbody>
</table>

Farmers were asked to map their surroundings in 2005 and 2006.

- River, wastewater parlours and fish
- Farmers apply Metaphos (a very hazardous pesticide involving skin, eye pain, respiratory exposure in sun (open skin pores))
- Continuous exposure in field after spraying
- Contaminated water used for irrigation and livestock drinking
- Farmers exposed close to field, children exposed to pesticides
- Sheds/drums on sale into village market (fish used people

ii) Hazard Mapping by Farmers

The diagram shows a strong immune reaction in a wastewater pool. It was used to facilitate pathways of exposure to contamintants, and at the same time to farmer’s interaction

C. Determining the Significance of Environment & Health Risks

The following diagrams provide a multi-factorial analysis of two health outcomes related to UA indicating possible areas for intervention

Potential Contributors to Fatigue among Pikine Farmers

<table>
<thead>
<tr>
<th>Factors</th>
<th>Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor water supply</td>
<td>Improve water quality</td>
</tr>
<tr>
<td>Poor sanitation</td>
<td>Improve sanitation</td>
</tr>
<tr>
<td>Pesticides use</td>
<td>Use alternative pesticides</td>
</tr>
</tbody>
</table>

D. Identifying Mitigation and Follow-up

Several interventions were identified to mitigate UA health impacts. These were designed and carried out with a number of stakeholders with farmers acting as the driving force. This included focusing on the safe use of pesticides, integrated pest management, the use of protective equipment for both pesticides and wastewater, different irrigation techniques and wastewater treatment. An evaluation of changes in risk perception and behaviour as a result of these interventions provide a deeper understanding of their effectiveness and of the socio-cultural framework within which risks were understood and managed. Some examples are provided below:

Structural Factors Contributing to Pesticide Environmental Health Risks

An exercise to analyse the farmers to improve understanding of the structural constraints that was undertaken with farmers. These findings were used to undertake a deeper analysis of structural constraints and to develop an action plan.